Holotype:  $\,^\circ$ ,  $Tauraco\ leucotis$ , Shashamane, Ethiopia, 16.xi.1958, O. Theodor; at British Museum (Natural History).

Paratype: 1 &, same data as holotype.

This species is admittedly very close to T. subrotunda, but the features of the  $\circ$  anus and  $\circ$  genitalia are believed sufficiently different to justify a species status more than contributing to a broadening of the T. subrotunda characterization.

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# SELECTION OF LECTOTYPES FOR SOME SPECIES OF EUXOA HÜBNER DESCRIBED BY J. B. SMITH

(LEPIDOPTERA: NOCTUIDAE)

E. L. Todd, Systematic Entomology Laboratory, Entomology Research Division, Agr. Res. Ser., USDA<sup>1</sup>

For several years I have been engaged in a study of the type material of noctuid species described by J. B. Smith. He proposed nearly 1,000 names for species in the family. Descriptions of about one-fourth of the species were based on uniques; the remainder require lectotype designations. The study is nearly completed, but preparation of the manuscript still will require considerable time because of the large number of species involved. The present lectotype designations are provided in order that D. F. Hardwick, Entomology Research Institute, Ottawa, Canada, can publish a paper on that section of the genus *Euxoa* Hübner to which the species treated belong. The selection of the lectotype for each name treated herein has been discussed with Hardwick, and he concurs with my selections.

For each name the following information is presented: 1, original combination; 2, reference to original description; 3, pertinent comments from the original description bearing on the number, sex,

<sup>&</sup>lt;sup>1</sup> Mail Address: c/o U. S. National Museum, Washington, D.C. 20560.

locality and collection, and source of the syntypes; and 4, subsequent pertinent references, comments, and actions. The number of syntypes examined in this study, present location, label data, and condition are also presented.

Smith was inconsistent in labeling specimens of the type series, but in general, prior to 1899, he usually labeled all specimens as "Type." After 1899 he usually labeled a " $\delta$  type" and/or " $\hat{\gamma}$  type" (depending on whether both sexes were recognized as being present). Other specimens (when present) were labeled as " $\delta$  cotype," " $\hat{\gamma}$  cotype" or simply "cotype" (present sense of paratype). For those species described after 1899 in which some specimens were labeled as types and others as cotypes, I have endeavored, all things being equal, to select as lectotypes specimens labeled either " $\delta$  type" or " $\hat{\gamma}$  type." For the species of Euxoa I have selected the " $\hat{\gamma}$  type" when a choice was possible.

In the cases of three names, Setagrotis dolens Sm., Setagrotis elata Sm., and Euxoa quinta Sm., each represented by syntypes of both sexes, selection of males as lectotypes seems desirable in consideration of actions taken by McDunnough (1950, pp. 369-370). For each of the three names he referred to a male syntype as the "holotype" and indicated a specific locality and collection. These actions by McDunnough have been discussed with C. W. Sabrosky,<sup>2</sup> a Commissioner, International Commission on Zoological Nomenclature. He is of the opinion that McDunnough's actions constitute lectotype designations. I confess that I do not fully follow the reasons for his opinion and that I am still in doubt as to whether McDunnough's actions constitute lectotype designations according to Article 74(a) and the definitions of the terms holotype, lectotype, and type-specimen in the Glossary of the 1961 International Code of Zoological Nomenclature. Possibly I have not properly interpreted the usage of certain quotation marks therein. Hardwick was also of the opinion that McDunnough had not designated lectotypes. In consideration of possible differences of opinion as to whether McDunnough did or did not designate lectotypes in the instances in question, it seems desirable to select and designate as lectotype the same specimens listed as "holotypes" by McDunnough. This will assure that the type-specimen is the same regardless of who is considered to have designated the lectotype.

In the course of his career Smith described 87 species in which he included a statement about type and USNM type number in the description. An example is that of *Carneades factoris* Smith, 1900, p. 456: "*Type.*—Cat. No. 4795 U.S.N.M." This species and three other species with similar statements are treated in this paper. Before the

 $<sup>^2\,\</sup>mathrm{Director},\,\mathrm{Systematic}$  Entomology Laboratory, Entomology Research Division, ARS, USDA.

significance of the reference to type and type number is discussed, a review of type recording at the U.S. National Museum and a discussion of Smith's type concepts, descriptive procedures, and use of

type numbers seems desirable.

The practice of recording types and assigning type numbers for insect types at the U.S. National Museum began on March 10, 1896. The first 15 species and most of the first 500 species recorded were moths described by Smith. Smith was very inconsistent in use of type numbers in descriptions. The bulk of his type number citations appeared in various numbers of the Proceedings of the U.S. National Museum beginning with volume 21, 1899, but he also used type numbers in papers in the Canadian Entomologist and the Proceedings of the Washington Academy of Sciences. In other papers published after 1898 Smith did not use type numbers in the descriptions even though many of the "types" were deposited in the U.S. National Museum. Even in a single paper Smith did not consistently use type numbers. For example, in Proc. U.S. Nat. Mus., 1900, he described 100 new species and stated (p. 413): "With few exceptions, the types of the species are now or will be deposited in the U.S. National Museum." In that paper type numbers may be found in the descriptions of 57 species. These were undoubtedly the numbers assigned to the "types" that already were in the museum. A considerable number of the "types" of the other described species were eventually deposited in the museum and received type numbers, but those numbers were not recorded in the original descriptions.

Smith never had a holotype concept. For the species he described between 1882 and 1898 he labeled all the specimens "Type," except in some papers in 1895 he used "Type 1," "Type 2," etc. and also "Type" and "Duplicate Type." In 1893, p. 11, he explained his type concept at that time: "Mr. Grote's practice seems to have been to mark all specimens before him when writing his original description, as 'type,' and I think Mr. Grote is right. It is the sum of the characters of the specimens before the describer that makes the species, and though neither may be the type of all the characters, yet all are types of the species." His procedure changed after 1899 as I have previously

noted.

Of the 87 Smith descriptions containing a reference to USNM type number, 34 were based on one sex only and only one specimen is labeled "type." Some of these are uniques and therefore are holotypes. Of the remainder only one specimen is labeled type, and usually it is the only specimen to bear the USNM type number label. In a few instances "cotypes" also bear the type number. Of the 53 descriptions based on both sexes (& type and & type with or without cotypes) both "types" may be in the U.S. National Museum with both or only one bearing the type number, or only one "type" may be in that

collection and bear the type number label, or both "types" may be in other collections and the type number label found only on "cotypes." In seven instances the type number cited in the descriptions has not

been located on any specimen.

Masner and Muesebeck (1968, p. 2) stated: "Where an author, in connection with his original description of a species, mentioned a National Museum type number and only one specimen bearing this number is marked 'Type' he is considered to have designated a holotype, even though he did not expressly say so in his description." I am inclined to agree with this opinion; however, others do not agree that inclusion of the word "Type" and a USNM type number satisfies the requirements of Article 73(b) of the 1961 International Code of Zoological Nomenclature. In the case of the species described by Smith, considering his type concept, one probably should question whether his use of "Type" preceding the type number was intended to refer to the type or to a type. Accordingly, it seems to me that the only reasonable action in these cases is to select and designate as lectotype for each species the specimen labeled "type" and bearing the type number.

In this paper the abbreviations, USNM, AMNH, and CNC are used frequently for the U.S. National Museum, the American Museum of Natural History, and the Canadian National Collection, respectively.

#### Agrotis aurulenta Smith, 1890, U.S.N.M. Bull. 38:215,

"HABITAT.—Colorado, Nebraska, Arizona." "Four specimens, three males and one female, all from the collection U.S. National Museum, are before me. Three of these are from Mr. Bruce, collected, one  $\delta$  'foothills near Denver,' and this is the smallest and almost immaculate specimen, the venular marks of t. p. line only being distinctly traceable: one  $\mathfrak{P}$ , 'Platte Canon, 6,500 feet,' and this is the largest, the transverse maculation obsolete, the dusky markings of the veins most distinct; the third specimen is also a  $\delta$ , 'Omaha, Nebr., June,' and this has a distinct reddish shade to the t. p. line, all the maculation very well defined. The fourth specimen without marked locality, is a  $\delta$ , which was given to me years ago by Mr. George Frank, who had several others in his collection, I think, from Arizona."

Smith, 1893, U.S.N.M. Bull. 44:66. "The types are in the National Museum collection."

## Syntypes examined: 4 (All USNM)

- 1) "Agrotis aurulenta Smith Type"; "49"; "foothills near Denver, Colo., Bruce"; "Type No. 81 USNM"; "Lectotype"; "δ genitalia on slide 2204 E. L. Todd"
- 2) "Agrotis aurulenta Smith Type"; "Collection J. B. Smith"; "Type No. 81 USNM"; [A &, abdomen missing.]
- 3) "Agrotis aurulenta Smith Type"; "51"; "Platte Canon, Colo., 6500 ft., D. Bruce"; "Type No. 81 USNM"; "♀ genitalia on slide USNM 1243 J. G. Franclemont"
- 4) "Agrotis aurulenta Smith Type"; "Setagrotis aurulenta Smith Type";

"Omaha, Neb., June 25, 87"; "Type No 81 USNM"; "Agrotis aurulenta ab. aurulentoides"; "Hmpsn., IV-373 and Smith Agrotids, p. 215, FHB, 1933"; "Type No. 50004 USNM" [A &, abdomen missing.]

Discussion:—McDunnough (1950, p. 371) stated: "It would seem well to designate as lectotype a male specimen, very pale, taken in the "Foothills near Denver, Colo. Bruce." and "Types: Aurulenta, holotype, male, Denver, Colorado (U.S.N.M.);" This is the only case of use of lectotype by McDunnough in that paper and the wording, "It would seem well to designate. .", leaves a question as to whether he did, in fact, designate a lectotype. Accordingly, I have selected, labeled, and now designate the specimen from "foothills near Denver, Colo., Bruce" as the lectotype.

Agrotis atomaris Smith, 1890, Trans. Amer. Ent. Soc. 17:47.

"Habitat.—California (Neumoegen)." "Three males are before me, all very much alike."

Smith, 1890, U.S.N.M. Bull. 38:154. "HABITAT.—California (Neumoegen. Collection U.S. National Museum)." "A large series in the Museum collection is all referable to this species." Smith, 1893, USNM Bull. 44:92. "Types are in the National Museum and in the Neumoegen collection."

Syntypes examined: 3 (All USNM)

- "Agrotis atomaris Smith Type"; "Cal."; "Col. B. Neumögen"; "Type No. 33755 USNM"; "& genitalia on slide 2286 E. L. Todd"
- 2) "Agrotis atomaris Smith Type"; "Col. B. Neumögen"; "♀ genitalia on slide 2288 E. L. Todd" [A ♀ contrary to original description.]
- 3) "Agrotis atomaris Smith Type"; "Cal."; "Type No. 111 USNM"; "36511" [A &, abdomen broken from specimen, a & abdomen attached to pin below specimen.]

Discussion:—The three syntypes listed above are undoubtedly the specimens which were before Smith when he described the species, in spite of the fact that one specimen is a female. Smith was commonly in error as to the sex of specimens. There is a fourth specimen in the collection of the U.S. National Museum from Alameda Co., California received from the U. S. Department of Agriculture through C. V. Riley, that was entered in the type book under type number 111 on June 18, 1896. It is not a syntype. The third syntype mentioned above also bears the USNM type number 111. That specimen was received from John B. Smith on May 19, 1900. It is the specimen of the original series that Smith retained, and undoubtedly it is the specimen referred to by Smith (1893, p. 92) as being in the National Museum. It obviously was not in this collection at that time. Because of the incorrectly determined sex and lack of locality label of one syntype and the broken condition of another. I have selected, labeled. and presently designate the male syntype bearing the USNM type number 33755 as the lectotype.

Chorizagrotis boretha Smith, 1908, Jour. N. Y. Ent. Soc. 16:86.

"Habitat.—Kaslo, B. C., August and September, Mr. Cockle." "Three males and one female, none of them very good, . . ."

Syntypes examined: 4 (1 AMNH, 2 CNC, and 1 USNM)

1) Chorizagrotis boretha Smith 2 type"; "Kaslo, B. C."; "6.IX.02"; "Barnes Collection"; "9 genitalia on slide 2321 E. L. Todd" [USNM]

2) "Chorizagrotis boretha Smith & type"; "Kaslo, B. C."; "6.IX.02"; "J. B.

Smith Collection Rutgers" [AMNH]

3) "Rhizagrotis boretha Sm. cotype"; "25.VII 03"; "25.VIII.1903, Kaslo, B. C., Coll. J. W. Cockle"; "PARATYPE, R. boretha Sm. No. 883"; "SLIDE Euxoa & No. ER3346" [Genitalic preparation by E. Rockburne] [CNC]

4) "Rhizagrotis boretha Sm. cotype"; "11.IX 06"; "11.IX.1906, Kaslo, B. C., Coll. J. W. Cockle"; "PARATYPE, R. boretha Sm., No. 883"; "SLIDE Euxoa & No. ER3468" [Genitalic preparation by E. Rockburne] [CNC]

Discussion:—Following the procedure of selecting females as lectotypes where possible, I have selected, labeled and presently designate the syntype labeled " $^{\circ}$ type" in the U.S. National Museum as the lectotype.

Euxoa criddlei Smith, 1908, Ann. N. Y. Acad. Sci. 18(2):97.

"Habitat: Aweme, Manitoba, Aug. 24, 25, Sept. 4." "One male and two females, in good condition; from Dr. James Fletcher, collected by Mr. Criddle, after whom the species is named."

Syntypes examined: 2 (Both AMNH)

1) "Euxoa criddlei Smith \$\pi\$ type"; "Aweme, Man, 25.VIII.06, Criddle"; "17"; "J. B. Smith Collection Rutgers"; "slide Euxoa No. 5023 \$\pi\$" [Genitalia slide prepared by D. F. Hardwick.]

2) "Euxoa criddlei Smith & type"; "Aweme, Man., 4.IX.04, Criddle"; "J. B.

Smith Collection Rutgers"

Discussion:—The syntype labeled "9 type" in the collection of the American Museum of Natural History, New York, N. Y. has been selected, labeled, and is presently designated as the lectotype. I have been unable to locate the other female syntype.

Carneades detesta Smith, 1893, U.S.N.M. Bull. 44:93.

"HABITAT.—Colorado." "I have mistaken Dr. Harvey's species, as appears by the type in the British Museum, and I propose the name *detesta* for the species I have described in my revision under the term *choris.*" [See Smith, 1890a, p. 158, pl. 5, fig. 68, in part.]

Syntypes examined: None.

Discussion:—Smith apparently did not label any specimens as types of this name, and I have been unable to identify any specimens from Colorado that he originally misidentified as *Carneades choris* (Harvey). There are four specimens in the collection of the U.S. National

Museum that were identified as *Carneades detesta* Smith by Smith, but they are from Arizona and Utah. Barnes and McDunnough (1912, p. 37, pl. 17, figs. 4 and 11) figured a male and a female from Eureka, Utah as this species and made the following statement: "It is a name proposed for the species wrongly identified by Smith in his Revision as *choris* Harv. and is without a type. We have a specimen from Arizona labelled *detesta* by Smith which agrees well with the specimen figured, with the exception of the central shading being more ochreous in the Arizona specimen." The Arizona specimen to which they referred is now in the U.S. National Museum. Hardwick will consider the name and its placement in his paper on *Euxoa*.

Setagrotis dolens Smith, 1906, Can. Ent. 38(7):226.

"Habitat.—Arrowhead Lake, British Columbia, June 8–15; Beulah, Manitoba, Aug. 28." "One male and two females in good condition in Dr. Barnes's and my own collection."

Syntypes examined: 3 (2 AMNH and 1 USNM)

- "Setagrotis dolens Smith & type"; "Beulah, Manitoba"; "28/8/02"; "Collection J. B. Smith" [AMNH]
- 2) "Setagrotis dolens Smith ♀type"; "Arrowhead Lake, B.C."; "J. B. Smith Collection Rutgers"; "slide Euxoa No. 5028♀" [Genitalia slide prepared by D. F. Hardwick.] [AMNH]
- 3) "Setagrotis dolens Smith ♀cotype"; "Arrowhead Lake, B.C."; "June 8–15"; "♀ genitalia slide USNM 1262 J. G. Franclemont" [USNM]

Discussion:—McDunnough (1950, p. 370) referred to two of the syntypes of this species as follows: "Types: . . . ; dolens, holotype, male, Beulah, Manitoba (location unknown; not at Rutgers University, New Brunswick, New Jersey); paratype female, Arrowhead Lake, British Columbia (USNM); . . ." Some entomologists would consider his action to constitute lectotype designation; others would disagree with that opinion. McDunnough did not label the specimen lectotype or holotype. In fact, in this instance he did not even see the specimen, vet he placed the name in the synonymy of Euxoa quebecensis (Smith). He apparently did not see the specimen labeled "9 type" at Rutgers either, as he does not mention the specimen. Rindge (1955, p. 108) lists both specimens. However, the male does not bear a "J. B. Smith Collection Rutgers" label. It is possible that McDunnough based his identification of the species on the "cotype" in the U.S. National Museum. In order to be consistent with McDunnough's restriction I have selected, labeled, and presently designate the "ôtype" from Beulah, Manitoba as the lectotype.

Carneades edictalis Smith, 1893, Ent. News 4(3):99, pl. 6, fig. 3.

"Hab.—Colorado. Bruce. Nos. 70, 207, 326." "Three males are at hand, the autennae pectinated."

Smith, 1894, Trans. Amer. Ent. Soc. 21:46, pl. 2, fig. 3, again describes this as new, using the same plate. He adds: "Mr. Bruce has sent me three specimens, all of them males, and all much alike. One of them is labeled 'Salida, 4, 18, 88,' the others are more recent captures."

Syntypes examined: 3 (2 USNM and 1 AMNH)

- 1) "Carneades edictalis Smith Type &"; "Colo., Bruce"; "70"; "Type No. 134 USNM"; "& genitalia on slide 1802 E. L. Todd" [Both hind wings torn.]
- 2) "Carneades edictalis Smith Type &"; "Colo., Bruce"; "326"; "Type No. 134
- USNM"; "& genitalia on slide 2156 E. L. Todd" [USNM]
  3) "Carneades edictalis Smith Type &"; "Salida, 4-18-88"; "Colo., Bruce"; "207"; "J. B. Smith Collection Rutgers"; "slide No. Euxoa 5001 &" [Genitalia slide prepared by D. F. Hardwick] [Abdomen and thorax badly damaged by dermestids.] [AMNH]

Discussion:—The syntype in the U.S. National Museum bearing the Bruce number "70" is the specimen that was illustrated by Smith. It has been selected and labeled as lectotype, and it is now so designated.

Setagrotis elata Smith, 1898, Jour. N. Y. Ent. Soc. 6:106.

"Habitat: Colorado." "I have three specimens, two males and one female, received from Professor C. P. Gillette, and numbered 565, 2610 and 2732."

Syntypes examined: 3 (2 USNM and 1 AMNH)

- 1) "Setagrotis elata Smith & type"; "Colo., 2632"; "74"; "Type No. 4153 USNM"; "USNM Acc. No. 34638"; "& genitalia on slide 2223 E. L. Todd"
- 2) "Setagrotis elata Smith \$\text{\$\text{\$\text{\$\text{\$type}\$}}\$; "Colo., 2610"; "90"; "Type No. 4153 USNM"; "36511" [An accession number]; "9 genitalia on slide 2224 E. L. Todd" [USNM]
- 3) "Setagrotis elata Smith & cotype"; "Colo., 565"; "J. B. Smith Collection Rutgers" [AMNH]

Discussion:—Smith apparently incorrectly cited the number 2632 on the "ô type" as 2732. Hampson (1903, p. 530 and pl. LXXIV, fig. 10) treats the species. He stated: "This species is unknown to me; figured from a photograph from type in U.S. Nat. Mus." On the explanation of plate LXXIV, figure 10 he stated that the specimen figured was a δ from Colorado. McDunnough (1950, p. 369) stated: "Types: . . . ; elata, holotype, male, allotype, female, Colorado (C. P. Gillette), presumably Fort Collins (U.S.N.M.) . . ." In line with these restrictions, I have selected, labeled, and presently designate the "ô type" in the U.S. National Museum as the lectotype.

Euxoa esta Smith, 1906, Can. Ent. 38(7):227.

"Habitat.-Wellington, British Columbia, July 30, Aug. 14 and Sept. 13. Theodore Bryant." "One male and three females, all in good condition, two of them from Dr. Barnes's collection, two from my own."

Syntypes examined: 4 (2 AMNH and 2 USNM)

- "Euxoa esta Smith & type"; "Wellington, B. C."; "14-8-03"; "J. B. Smith Collection Rutgers" [AMNH]
- "Euxoa esta Smith ♀type"; "Wellington, B. C., 13.IX.02"; "Collection J. B. Smith"; "slide Euxoa No. 5031♀" [Genitalia preparation by D. F. Hard-wick] [AMNH]
- "Euxoa esta Smith ♀cotype"; "Wellington, B.C., Theo. Bryant"; "14-8-03" [USNM]
- 4) "Euxoa esta Smith ♀cotype": "Wellington, B.C., 30-VII-02"; "Doesn't agree with esta ♂ Type" [USNM]

Discussion:—My policy of selecting females when possible as lectotypes in this genus is followed here. Accordingly, I have selected, labeled, and presently designate the "9 type" in the American Museum of Natural History as the lectotype.

Carneades factoris Smith, 1900, Proc. USNM 22(1203):456.

"Habitat.—Glenwood Springs, Colorado, June, July and August (Dr. Barnes)." "Five females in fair condition only." "Type.—Cat. No. 4795, U.S.N.M."

Syntypes examined: 5 (3 USNM and 2 AMNH)

- "Carneades factoris Smith ♀type"; "Glenwood Springs, Col., 1894-7/19":
   "Type No. 4795 USNM"; "36311"; "♀ genitalia on slide 2299 E. L. Todd"
   [USNM]
- "Carneades factoris Smith cotype"; "Glenwood Spgs., Colo"; "June 8–15"
   [A ♀] [USNM]
- 3) "Carneades factoris Smith cotype"; "Glenwood Spgs., Colo"; "July 1–7" [A  $\mathfrak P$ ] [USNM]
- "Carneades factoris Smith cotype"; "Glenwood Springs, Col., 1894-7/10,
   W. Barnes"; [A ♀] [AMNII]
- 5) "Carneades factoris Smith cotype"; "Glenwood Springs, Col., 1892- 8, W. Barnes" [A  $\, \circ$  ] [AMNH]

Discussion:—I have selected, labeled, and now designate the specimen marked "\$\partial \text{type}\$" in the U.S. National Museum as the lectotype. Some workers may consider that inclusion of the word type and type number in the original description constitutes holotype designation by Smith. In either event, the type-specimen is the same.

Carneades fulda Smith, 1900, Proc. U.S.N.M. 22(1203):437.

"Habitat.—Alameda County, California, September." "Two female specimens from the U.S. National Museum, collected by Mr. A. Koebele." "Type.—Cat. No. 4792, U.S.N.M."

Syntypes examined: 2 (1 USNM and 1 AMNH)

- 1) "Carneades fulda Smith ♀type"; "Alameda Co., Cal."; "Sept."; "Through C. V. Riley"; "Type No. 4792 USNM"; "♀ genitalia on slide 2249 E. L. Todd" [USNM]
- 2) "Carneades fulda Smith cotype"; "Alameda Co., Cal."; "Sept." [AMNH]

Discussion:—I have selected, labeled, and now designate the "\$\perp\$ type" in the U.S. National Museum as lectotype. My reasons for designation of a lectotype are explained in the introductory comments in this paper.

Agrotiphila incognita Smith, 1893, Ent. News 4(3):101, pl. 6, fig. 9.

"Hab.—Laggan, British Col., above timber. Bean, Nos. 462, 492." Smith, 1894, Trans. Amer. Ent. Soc. 21:52, pl. 2, fig. 9 again described this as new, using the same plate. He changed the habitat statement as follows: "Hab.—Laggan, British Columbia, above timber, 7000 feet, July 22, 1890; Aug. 10, 1891, Bean, Nos. 462, 492." and adds "Two male specimens are before me.."

Syntypes examined: 2 (Both USNM)

- 1) "Agrotiphila incognita Smith & type"; "Laggan, B. C., above timber, 7000 ft., July 24, '89"; "492"; "Type No. 141 USNM"; "& gen. 363 17Aug32 FHB" [F. H. Benjamin slide]
- 2) "Agrotiphila incognita Smith & type"; "Brit. Col."; "462"; "Type No. 141 USNM"; "& gen. 364 17Aug32 FHB"

Discussion:—There are several discrepancies between the collection dates published in the second description and those on the specimens. Laggan was a railroad station in Alberta about 2 miles from Lake Louise. I do not know why the locality was given as in British Columbia. Perhaps Bean actually collected the specimens in British Columbia near Laggan. I have selected, labeled, and now designate the specimen with label "492" in the U. S. National Museum as the lectotype.

Carneades Inteositus Smith, 1900, Proc. U.S.N.M. 22(1203):433.

"Habitat.—Hall Valley, Colorado. July 24 to 30 (Dr. Barnes)." "One male and one female, both in good condition."

Syntypes examined: 2 (Both USNM)

- 1) "Carneades luteositus Smith & type"; "Hall Valley, Colo."; "Type No. 5138 USNM"; "36511"; "& genitalia on slide 2293 E. L. Todd"
- 2) "Carneades luteositus Smith ♀type"; "Hall Valley, Colo."; "July 24–30"; "♀ genitalia on slide 2294 E. L. Todd"

Discussion:—Hampson (1903, p. 242 and pl. LXIII, fig. 23) stated: "This species is unknown to me; figured from a photograph from type in U. S. Nat. Mus." On the explanation of plate LXIII, figure 23 he stated that the specimen figured was a male from Colorado. Because the "\$ type" was figured by Hampson, I have selected, labeled, and presently designate it as the lectotype.

Carneades maimes Smith, 1903, Can. Ent. 35(5):131.

"Habitat.—Calgary, Alberta, July 27—August 21 (Mr. Dod); Colorado, July 18 (Mr. Kemp); Brandon, Manitoba (Mr. Hanham)." "Five males and seven females in fair or good condition are before me."

Syntypes examined: 11 (8 AMNII and 3 USNM)

- "Carneades maimes Smith Qtype"; "Calgary, Alta., 16.VIII.01, (Light), F.
  H. Wolley Dod"; "Head of Pine Creek"; "48d"; "J. B. Smith Collection
  Rutgers"; "slide Euxoa No. 5013 Q" [Genitalia preparation by D. F. Hardwick] [AMNH]
- 2) "Carneades maimes Smith & type"; "Calgary, Alta., 13.VIII.01, F. H. Wolley Dod"; "Head of Pine Creek"; "66"; "J. B. Smith Collection Rutgers" [AMNH]
- 3) "Carneades maimes Smith cotype"; "Calgary, Alta., 18.VIII.95, F. H. Wolley Dod"; "Head of Pine Creek"; "J. B. Smith Collection Rutgers" [A & ] [AMNH]
- 4) "Carneades maimes Smith cotype"; "Calgary, Alta., 16.VIII.01, (Light), F. H. Wolley Dod"; "Head of Pine Creek"; "J. B. Smith Collection Rutgers" [A ♀] [AMNH]
- 5) "Carneades maimes Smith cotype"; "Edge of Calgary, Alta., 13.VIII.93"; "J. B. Smith Collection Rutgers" [A & ] [AMNH]
- 6) "Carneades maimes Smith cotype"; "Calgary, Alta., 15.VIII.93, F. H. Wolley Dod"; "Mouth of Fish Creek"; "J. B. Smith Collection Rutgers" [A ♀] [AMNH]
- 7) "Carneades maimes Smith cotype"; "Calgary, Alta., 10.VIII-94, F. H. Wolley Dod"; "J. B. Smith Collection Rutgers" [A Q ] [AMNH]
- 8) "Carneades maimes Smith cotype"; "Brandon, Manitoba" [A 9] [AMNH]
- 9) "Carneades maimes Smith cotype"; "Calgary, 27.VII-94, F. H. W. Dod"; "66a"; "Barnes Collection" [A & ] [USNM]
- 10) "Carneades maimes Smith cotype"; "Calgary, Alta, 16.VIII.01, (Light), F. H. Wolley Dod"; "Head of Pine Creek"; "Barnes Collection" [A & ] [USNM]
- "Carneades maimes Smith cotype"; "Colo., 7–18"; "Collection S. T. Kemp";
   "Barnes Collection" [A ♀] [USNM]

#### Other syntypes: 1 (CNC)

 "Carneades maimes Sm. cotype, ex. Coll. Sm II. 10"; "23.VIII.93, Calgary, Alta., F. H. Wolley Dod"; "Mouth of Fish Creek"; "PARATYPE, C. maimes Sm. No. 874"; "a little smaller & paler of than ♀ ô type is a good deal darker, Xd II 10 Dod"; "ex Coll. Wolley-Dod" [A ♀]

Discussion:—Following my policy of selecting a female as the lectotype when possible in the genus Euxoa, I have selected, labeled, and presently designate the " $\circ$ type" in the American Museum of Natural History as the lectotype of this species.

Euxoa moxa Smith, 1907, Trans. Amer. Ent. Soc. 33:129.

"Hab.—Colorado, Glenwood Springs; Durango, July 8th to 15th." "One 3 and one  $\mathfrak P$  in good condition."

## Syntypes examined: 2 (1 USNM and 1 AMNH)

- "Euxoa moxa Sm. ♀type"; "Durango, Colo."; "July 8–15"; "Coll. J. B. Smith"; "E. moxa Sm., Comp. with Type &, Coll. Smith, See Note No. 125, OK"; "♀ Genitalia Slide: USNM 1265 J. G. Franclemont" [USNM]
- 2) "Euxoa moxa Smith & type"; "Glenwood Spgs., Col."; "Collection J. B. Smith" [AMNH]

Discussion:—McDunnough (1950, p. 370) stated: "Types: . . . ; moxa, holotype, female, Durango, Colorado (U.S.N.M.); . . ." To assure that this specimen is considered to be the type-specimen by subsequent workers, I have selected, labeled, and now designate the "9 type" from Durango, Colorado in the U.S. National Museum as the lectotype.

Euxoa nesileus Smith, 1903, Jour. N. Y. Ent. Soc. 11:192.

"Habitat: Brandon, Manitoba; Calgary, Canada, July 5–12 (F. H. Wolley Dod)." "Two males and three females are before me at present; others are in the collection of Mr. Dod, . . ."

Syntypes examined: 4 (All AMNH)

- 1) "Euxoa nesilens Smith ♀type"; "Calgary, 6.VII.98, F. H. W. Dod"; "Head of Pine Creek"; "J. B. Smith Collection Rutgers"; "slide Euxoa No. 5038♀" [Genitalia preparation by D. F. Hardwick]
- 2) "Euxoa nesilens Smith & type"; "Brandon, Manitoba"; "Collection J. B. Smith"
- 3) "Euxoa nesilens Smith eotype"; Calgary, Alberta, July 12 (Dod) [A &]
- 4) "Euxoa nesilens Smith cotype"; Calgary, Alberta, July 12 (Dod) [A♀]

Other syntypes: 1 (CNC)

1) "Carneades nesilens Sm.  $\circ$  cotype"; "PARATYPE, E. nesilens Sm. No. 881"; "5.VII.04 (? = 94), Calgary, Alta., F. H. Wolley Dod"; "ex Coll. Wolley-Dod"

Discussion:—It will be noted that the collection data for the two "cotypes" has not been placed in quotation marks. For some unknown reason I neglected to record these data while examining the specimens. I have used the information cited by Rindge (1955, p. 122). Following my policy for Euxoa of selecting female lectotypes when possible, I have selected, labeled, and now designate the " $^{\circ}$ type" in the collection of the American Museum of Natural History as the lectotype of this species.

Rhizagrotis perolivalis Smith, 1905, Jour. N. Y. Ent. Soc. 13(4):194.

"Habitat.—Calgary, Alberta, head of Pine Creek, July 9, 10, 14." One male and three females, all in good condition from Mr. F. H. Wolley Dod."

Syntypes examined: 2 (Both AMNH)

- 1) "Rhizagrotis perolivalis Smith & type"; "Calgary, Alta., 9.VII.96, F. H. Wolley Dod"; "Head of Pine Creek"; "J. B. Smith Collection Rutgers"; "slide Euxoa No. 5014 &" [Genitalia preparation by D. F. Hardwick]
- 2) "Rhizagrotis perolivalis Smith ♀type"; "Calgary, Alta., 14.VII.94, F. H. Wolley Dod"; "Mouth of Fish Creek"; "J. B. Smith Collection Rutgers" [A &! This fact apparently discovered earlier as the ♀ sex sign has been marked-over with pencil.]

Other syntypes: 1 (CNC)

1) "Rhizagrotis perolivalis Sm. ♀ co-type"; "10.VII.04, Calgary, Alta., F. H. Wolley Dod"; "Head of Pine Creek"; "SLIDE Eux No. 25♀" [D. F. Hardwick preparation.] "PARATYPE, R. perolivalis Sm. No. 885"; "ex Coll. Wolley-Dod"

Discussion:—I have been unable to locate one of the "cotypes" which should be a female according to the original description. I have selected, labeled, and presently designate the specimen marked "& type" in the collection of the American Museum of Natural History as the lectotype of *Rhizagrotis perolivalis* Smith.

Euxoa pestula Smith, 1904, Can. Ent. 36(6):150.

"Habitat.—Calgary, Alberta, July, August and September, F. H. Wolley Dod." "Twenty examples, representing both sexes in almost equal numbers."

Syntypes examined: 5 (4 AMNH and 1 USNM)

- "Euxoa pestula Smith 9 type"; "Calgary, Alta., F. H. Wolley Dod"; "4.VII. 04"; "Head of Pine Creek"; "J. B. Smith Collection Rutgers"; "slide Euxoa No. 5032 9" [Genitalia preparation by D. F. Hardwick] [AMNH]
- 2) "Euxoa pestula Smith & type"; "Calgary, Alta., F. H. Wolley Dod"; "4.VII. 04"; "Head of Pine Creek"; "J. B. Smith Collection Rutgers" [AMNH]
- 3) "Euxoa pestula Smith cotype"; "Calgary, Alta., F. H. Wolley Dod"; "1.VII. 04"; "Head of Pine Creek"; "J. B. Smith Collection Rutgers" [A & ] [AMNH]
- 4) "Euxoa pestula Smith cotype"; "Calgary, Alta., F. H. Wolley Dod"; "2.VII. 04"; "Head of Pine Creek"; "J. B. Smith Collection Rutgers" [A ♀] [AMNH]
- 5) "Euxoa pestula Smith cotype"; "Calgary, 27.VI.96, F. H. W. Dod"; "Head of Pine Creek" [A ♀, right hindwing broken.] [USNM]

Discussion:—I have selected, labeled, and now designate the "9 type" in the American Museum of Natural History as the lectotype. Fifteen syntypes have not been located. Smith probably did not put his name label on these specimens and as there are probably more than fifteen specimens with correct locality and date in collections, no effort has been made to identify the specimens. There are 15 in the USNM alone that might be syntypes.

Carneades pindar Smith, 1900, Proc. U.S.N.M. 22(1203):451.

"Habitat.—Bluff, Utah (Mrs. H. M. Peabody)." "Two males from the U. S. National Museum, in not the best of condition." "Type.—Cat. No. 4789, U.S.N.M."

Syntypes examined: 2 (1 USNM and 1 AMNH)

- 1) "Carneades pindar Smith & type"; "Bluff, Utah, 1898, Mrs. H. M. Peabody"; "Type No. 4789 USNM"; "& genitalia on slide 2250 E. L. Todd" [USNM]
- 2) "Carneades pindar Smith cotype"; "Bluff, Utah, 1898, Mrs. H. M. Peabody" [A & ] [AMNH]

Discussion:—Hampson (1903, p. 295) states: "This species is unknown to me; figured from a photograph from type in U. S. Nat. Mus." The figure to which he refers is figure 9 on plate LXVI. Smith obviously retained the specimen marked "cotype" for his personal collection. Some may consider that the specimen marked "\$ type" and bearing the USNM type number is the holotype; however, for reasons explained in the introductory part of this paper I believe a lectotype should be designated. Therefore, I have selected, labeled, and presently designate the "\$ type" in the U. S. National Museum as the lectotype.

Agrotis quinquelinea Smith, 1890, Trans. Amer. Ent. Soc. 17:49.

"Habitat.—Sierra Nevada, Cal. (McGlashan)." ". . . so far as they can be made out from the single female before me." Smith, 1890, U.S.N.M. Bull. 38: 175 adds nothing. Smith, 1893, U.S.N.M. Bull. 44:99 states: "The type is in the Edwards collection."

Syntypes examined: 1 (USNM)

1) "Agrotis quinquelinea Smith Type"; "Sier. Nev., Cal."; "Type No. 4980 USNM"; "36511"; "Barnes Collection"; "\$\delta\$ genitalia on slide 2592, Oct. 11, 1939, J.F.G.C." [J. F. G. Clarke]

Discussion:—The specimen examined may actually be the holotype of Agrotis quinquelinea Smith, but there are so many discrepancies in the published record and the label data that it seems prudent to consider it as a syntype. Smith's reference in the original description to "the single female" probably was intended to convey the idea of a single specimen, a female. On the other hand his comparative statement could have been based only on the female sex, and therefore, conceivably, he could have had males also. The specimen examined is a male, but it would not be a surprise if Smith had erred in stating the sex. His statement in 1893 that the type was in the Edwards' collection is apparently not true. He frequently made such statements while he still had the specimen, intending apparently to send the specimen subsequently to the collection in which he stated it was housed. In this instance the specimen in the USNM was received from him on May 18, 1900 and listed in the type catalog as "Type," but it cannot be determined whether Smith meant it as the type or a type. I was unable to find a "Type" in the collection of Edwards in the American Museum of Natural History. Another discrepancy is the "Barnes Collection" label. If the specimen came to the USNM in 1900 there should be no such label on the specimen. It is possible that it may have been loaned to Barnes, that it was not returned until the Barnes collection was received by the U.S. National Museum, and that it then received the "Barnes Collection" label. Smith's usage of "The type. ." in 1893 indicates that he probably had only one specimen because he did not have a holotype concept. Smith may even have been thinking of the type of some other species when he made

the statement! Considering the number and range of demonstrable errors in Smith's total descriptive work, such a possibility is not unbelievable. Some workers may feel that the type should be considered lost and that a neotype should be designated. I am inclined to think that the specimen in the U. S. National Museum is the type and was the only specimen before Smith when he described the species. I cannot prove this to be the case; therefore, I have selected, labeled, and now designate the "Type" in the U. S. National Museum as the lectotype. Hampson (1903, p. 260) stated: "This species is unknown to me; figured from a photograph from type in U. S. Nat. Mus." The figure (plate LXIV, fig. 14) is stated to be a 9 from California!

Euxoa quinta Smith, 1908, Ann. New York Acad. Sci. 18(2):97.

"Habitat: High River, Alberta (Mr. Thomas Baird); Kaslo, B. C., June 1, 30, July 7, 10 (Mr. J. W. Cockle)." "Three males and two females, all in good condition; received from Dr. James Fletcher."

## Syntypes examined: 3 (All AMNH)

- 1) "Euxoa quinta Smith & type"; "Kaslo, B. C."; "10.VII 05"; "J. B. Smith Collection Rutgers"
- "Euxoa quinta Smith ♀type"; "Kaslo, B. C."; "I.VI 06"; "J. B. Smith Collection Rutgers"; "slide Euxoa No. 5029♀" [Genitalia preparation by D. F. Hardwick]
- 3) "Euxoa quinta Smith & cotype"; "High River, Alberta, Thos. Baird"; "J. B. Smith Collection Rutgers"

### Other syntypes: 2 (Both CNC)

- "Euxoa quinta Sm. & co-type"; "7-VII 05"; "7.VII.1905, Kaslo, B. C., Coll.
  J. W. Cockle"; "PARATYPE, E. quinta Sm. No. 880; "SLIDE Eux No. 104a"
- 2) "Euxoa quinta Sm. ♀ cotype": "30.VI.1906, Kaslo, B. C., Coll. J. W. Cockle"; "PARATYPE, E. quinta Sm. No. 880"; "SLIDE Euxoa ♀ No. ER 1637" [Genitalic preparation by E. Rockburne]

Discussion:—McDunnough (1950, p. 370) stated: "...; quinta, holotype, male, High River, Alberta (Rutgers University, New Brunswick, New Jersey); paratype, male, Kaslo, British Columbia (C.N.C.)." Rindge (1955, p. 128) did not consider McDunnough's restriction as lectotype designation, but assumed McDunnough had erred in citing the type locality. I have selected, labeled, and now designate the "& cotype" from High River, Alberta in the American Museum of Natural History as the lectotype. This action is in line with the policy explained in the introductory remarks of this paper.

Chorizagrotis sordida Smith, 1908, Jour. New York Ent. Soc. 16:86.

"Habitat.—Kaslo, B. C., September 6, Mr. Cockle." "1  $\updelta$  and 5  $\upopage$  , in fair or good condition."

Syntypes examined: 3 (2 AMNH and 1 USNM)

- 1) "Chorizagrotis sordida Smith & type"; "Kaslo, B. C."; "6.IX.02"; "J. B. Smith Collection Rutgers"; "slide Euxoa No. 5040 & [Genitalia preparation by D. F. Hardwick] [AMNH]
- 2) "Chorizagrotis sordida Smith ♀type"; "Kaslo, B. C."; "J. B. Smith Collection Rutgers" [Abdomen broken from body.] [AMNH]
- 3) "Chorizagrotis sordida Sm. cotype"; "Kaslo, B. C., 7/26"; "Barnes Collection" [A ♀] [USNM]

Other syntypes: 1 (CNC)

1) "Chorizagrotis sordida Sm. co-type"; "Kaslo, B. C., Coll. J. W. Cockle"; "PARATYPE, C. sordida Sm. No. 882"; "SLIDE Euxoa♀ No. ER3467" [Genitalic preparation by E. Rockburne]

One other specimen in the Canadian National Collection is probably also a syntype. It bears the correct label data, but it does not bear a Smith name label.

Discussion:—Because the "?type" is damaged, I have selected, labeled, and presently designate the "?type" in the American Museum of Natural History as the lectotype.

Agrotis soror Smith, 1888, Proc. U.S.N.M. 10:453.

"Habitat.—Montana." "Two ♀ specimens from Mr. Hulst furnish the types." Syntypes examined: 1 (USNM)

1) "Agrotis soror Smith Type"; "Collection J. B. Smith"; "Type No. 92 USNM"; "♀ genitalia on slide 2320 E. L. Todd" [No locality label.]

Discussion:—There is a second specimen in the U. S. National Museum that was received from the Graef collection via the Brooklyn Museum in 1929. It has been entered in the type book under number 33729. It bears a small black-bordered label "soror Type" in what appears to be Smith's handwriting. But it is labeled also "Agrotis soror Sm., Ariz., Coll. Edw. L. Graef." I do not consider it to be a syntype. I have selected, labeled, and now designate the specimen bearing the label "Type No. 92 USNM" in the U. S. National Museum as the lectotype of Agrotis soror Smith.

Carneades territorialis Smith, 1900, Proc. U.S.N.M. 22(1203):436.

"Habitat.—Denver, October 12; Salida, August 10 (Oslar); Glenwood Springs, October 1–7 (Barnes), all in Colorado; Pullman, Washington, September 24 (Piper)." "Two males and three females are before me." "Type.—Cat. No. 4793, U.S.N.M." Smith, 1893, U.S.N.M. Bull. 44:78 states—"The type is in the National Museum."

Syntypes examined: 4 (3 USNM and 1 AMNH)

- 1) "Carneades territorialis Smith Qtype"; "Denver, Col., X-12"; "Type No. 4793 USNM"; "36511"; "Q genitalia on slide 2248 E. L. Todd" [USNM]
- 2) "Carneades territorialis Smith & type"; "Denver, Col., X-12"; "Type No. 4793 USNM"; "36311"; "& genitalia on slide 2247 E. L. Todd" [USNM]
- 3) "Carneades territorialis Smith  $\circ$  cotype"; "Glenwood Spgs., Colo."; "Barnes Collection" [USNM]

4) "Carneades territorialis Smith & cotype"; "Salida, Colo., 7-10-1898"; "J. B. Smith Collection Rutgers" [AMNH]

Discussion:—Both the "&type" and "\$\perp\$ type" bear the USNM type number 4793. I have selected, labeled, and now designate the "\$\perp\$ type" in the U. S. National Museum as the lectotype. The missing syntype is the specimen from Pullman, Washington, September 24 collected by Piper.

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# A NEW GENUS OF BRUCHIDAE FROM SOUTH AMERICA, WITH THE DESCRIPTION OF A NEW SPECIES

(COLEOPTERA)

JOHN M. KINGSOLVER, Systematic Entomology Laboratory, Entomology Research Division, Agr. Res. Serv., USDA<sup>1</sup>

Seeds of trees and shrubs in the plant genus *Prosopis* are heavily attacked by species in at least eight genera of Bruchidae. *Prosopis* spp. seed pods provide important forage for cattle, sheep, goats and other wild and domesticated browsing animals. Massive infestations by bruchids reduce the food value of this forage and the generation of new growth.

On the North American continent, species in the genera Neltumius Bridwell, Mimosestes Bridwell, Algarobius Bridwell, and Amblycerus Thunberg, are known to attack Prosopis spp., and in South America the complementary genera are Rhipibruchus Bridwell, Pectinibruchus Kingsolver, and the new genus described herein. In addition, specimens tentatively identified as Acanthoscelides longiscutus (Pic) have been reared from Prosopis. Bridwell (1920) listed Caryedon serratus (Olivier) as well as Algarobius and Mimosestes in Prosopis on the Hawaiian Islands.

All of the bruchids in *Prosopis* on both continents belong to the subfamily Bruchinae as it is now understood. The species of *Neltumius* have been treated by Kingsolver (1964), and *Rhipibruchus* and *Pectinibruchus* by Kingsolver (1967). A revision of *Algarobius* species will soon be completed. As in many bruchid groups, the species within each of these genera are very similar externally, and male genitalia provide the chief source of determinant specific characteristics. Similarities in male genitalia often indicate species groups and genera for which external characteristics are subtle.

## Scutobruchus, n. gen.

Elongate-ovate. Color yellowish-brown, brown or grayish vestiture on black or reddish integument. Pattern varying in intensity from unicolorous to light background with strongly contrasting dark spots or streaks. Legs red to brown.

<sup>&</sup>lt;sup>1</sup> Mail address: c/o U.S. National Museum, Washington, D. C. 20560.